

duced by the geologist," which last are based on the rate of changes produced now, during a period of diminished energy of all main geological factors.

THE Chair of Botany at Aberdeen, we learn from the *Gardener's Chronicle*, is likely to be vacant shortly. Among the candidates are mentioned the names of Dr. J. B. Balfour, Rev. Dr. Brown, Dr. W. R. M'Nab, and Dr. Traill.

MR. C. P. OGILVIE, who has been studying the art of aquarium management at the Royal Aquarium, Westminster, has been appointed Curator and Resident Naturalist to the aquarium recently completed at Great Yarmouth, Norfolk.

THE distance between Paris and Marseilles is 863 kilometres, not 1,820, as stated in our note on p. 266 last week.

THE additions to the Zoological Society's Gardens during the past week include a Malbrouck Monkey (*Cercopithecus cynosurus*) from East Africa, presented by Mr. L. C. Brown; a Macaque Monkey (*Macacus cynomolgus*) from India, presented by Mrs. Cecil Long; a Pig-tailed Monkey (*Macacus nemestrinus*) from Java, presented by the crew of H.M.S. *Dwarf*; a Bay Lynx (*Felis rufa*) from North America, presented by Mr. W. Otho N. Shaw; two Teguxin Lizards (*Teius teguxin*) from South America, presented by Mr. A. Stradling; an Ocelot (*Felis pardalis*), an Azara's Fox (*Canis azarae*) from South America, a Tataupa Tinamou (*Crypturus tataupa*), two Talpacoti Ground Doves (*Chamaepelia talpacoti*), two Scaly Doves (*Scardafella squamosa*) from Brazil, a Chopi Starling (*Aphobus chopi*), a Chilian Sea Eagle (*Geranoaëtus aguia*) from Pernambuco, deposited; two Ring-tailed Lemurs (*Lemur catta*) from Madagascar, purchased.

SCIENTIFIC SERIALS

THE *American Journal of Science and Arts*, January.—Contributions to meteorology, being results derived from an examination of the observations of the United States Signal Service, and from other sources, by Elias Loomis.—On some points in connection with vegetation, by J. H. Gilbert.—Observations on a property of the retina first noticed by Tait, by Ogden N. Rood.—On grains of metallic iron in Dolerites from New Hampshire, by George W. Hawes.—On certain phenomena of binocular vision, by Francis E. Nipher.—Notes on the Vespertine strata of Virginia and West Virginia, by William M. Fontaine.—On the production of transparent metallic films by the electrical discharge in exhausted tubes, by Arthur W. Wright.

THE *Verhandlungen des naturhistorischen Vereins der preussischen Rheinlande und Westfalens* (Jahrg. 33, Part 1.) contain the following papers of interest:—Geological, Mineralogical, and Anthropological Section: On some new discoveries in the Jurassic formation west of the river Weser, by W. Treukner.—On a diseased ox's rib from the calcareous tuff-stone in the vicinity of the Toenistein saline spring (Rhenish Prussia), by Prof. Schaaffhausen.—On some bronze implements found near the Weser river, by the same.—On a petrified piece of wood with the image of a human face, by the same.—On the so-called periclinic combinations of Albite by Prof. vom Rath.—On Skrodite-crystals, on plagioclase, and on Brookite crystals, by the same.—On a pine cone found near Dormagen, on the Rhine, together with Roman coins and antiquities, by Prof. Schaaffhausen.—On Capellini's researches on pliocene man in Tuscany, by the same.—On some stone implements recently found, by the same.—On geological researches made at Nagyag and Vöröspatak, in Transylvania, by Prof. vom Rath.—On olivine from Dockweiler and on crystallised slakes, by Dr. Mohr.—Physical Section: On Mallet's theory of volcanic force, by Prof. A. von Lasaulx.—On a further simplification of the electrodynamic fundamental law, by Prof. Clausius.—On anomalous dispersion of light, by Prof. Ketteler.—On the effects of a stroke of lightning, by Herr Gieseler.—Zoological and Anatomical Section: Synoptical review of the genera and species of *Stilpnoida*, by A. Förster.—On the respiration of *Limnæa*, by Prof. Troschel.—On a specimen of *Pediculus capitis* with extremely

large system of tracheæ, by Dr. Bertkau.—On Dareste's investigations on the reproduction of eels, by Prof. Troschel.—On the *Cephalopoda* of the German upper chalk, by Dr. Schlüter.—On the spermatogenesis of *Amphibia*, by Prof. von la Valette St. George.—Botanical Section: On the influence of interior and exterior causes upon new formations in plants, by Prof. Vöchting.—On the fruit of *Raphia taedigera*, by the same.—On some phenomena observed in the botanical garden of Poppelsdorf, near Bonn, during the summer of 1875, by Herr Körnicke.

SOCIETIES AND ACADEMIES

LONDON

Royal Astronomical Society, January 12.—Mr. William Huggins, D.C.L., president, in the chair.—Mr. Robert John Baillie, Mr. Henry Vere Barclay, the Rev. Daniel Dutton, Mr. Samuel Haywood, Dr. Louis Stomeyer Little, Mr. Richard Pearce, Commander William James Lloyd Wharton, R.N., H.M. surveying ship *Fawn*, and Mr. Jesse Young, were elected Fellows of the Society.—A paper by Mr. Marth giving an ephemeris for the satellites of Uranus for the year 1877, was read. This is one of a series of papers which Mr. Marth has presented to the Society giving ephemerides useful for physical observations of the major planets and their satellites. It was remarked by the president that these ephemerides involve much labour in their construction, and the astronomical world is greatly indebted to Mr. Marth for their production.—A paper by Prof. Harkness on the theory of the horizontal photoheliograph was read. The instrument consists of a heliostat and a long focussed object-glass, in the principal focus of which the negatives are taken; the distortion produced by secondary magnifiers is thus avoided, and very accurate means are adopted for determining the shrinkage of the collodion film upon the plate and the accurate orientation of the photograph.—Mr. Wentworth Erck read a paper on an improved eye-piece for viewing the sun. His method is to use a small glass prism as a reflector which is placed within the image of the sun, so that only a portion of the rays from a part of the disc are reflected into the eye-piece at any one time; the effects of heating are thus reduced to a minimum, and for viewing small areas of the sun the eye-piece is preferable to that suggested by Mr. Dawes in which the light of the whole image is reflected and the small area to be observed is viewed through a diaphragm which is exposed to the heating effects of the reflected rays.—A paper by Mr. Knott was presented to the society; it contains a catalogue which he has been some years in preparing, and gives a very large number of micrometrical measures of double stars which have been made with a very fine eight-inch refracting telescope formerly the property of Mr. Dawes.

Chemical Society, January 18.—Prof. Odling, F.R.S., vice-president, in the chair.—The secretary read a paper by Dr. Jäger on some derivatives of dithymyltrichlorethane, a substance produced on adding a mixture of sulphuric and acetic acids to a mixture of thymol and chloral. By heating this compound with zinc dust it yields dithymylethane and dithymylethene.—Mr. Kingzett then read a preliminary notice by Dr. Heike and himself on some new reactions in organic chemistry and their ultimate bearings, showing that the colour reaction known as the "Pettenkofer reaction" produced by the action of sulphuric acid on sugar and cholic acid extended to many other substances, some of which did not require the admixture of sugar to produce the colour. This was followed by a paper on dinitroso-orein and dinitro-orein, by Dr. J. Stenhouse and Mr. C. E. Groves, in which the methods of preparation and properties of these compounds were fully described.—The last communication, by Mr. T. Carnelley, was on high melting points with special reference to those of metallic salts, Part 3.—The meeting was then adjourned until Thursday, February 1.

Zoological Society, January 16.—Prof. Newton, F.R.S., vice-president, in the chair.—Capt. H. W. Feilden, exhibited and made remarks on some of the birds collected by him in the Arctic regions during the recent North Polar Expedition. Sixteen species were enumerated as having been met with on the shores of the Polar Basin, and north of 82° N. lat., but some of these only occurred as stragglers.—The Rev. Canon Tristram exhibited and made remarks on a specimen of a rare terrestrial Dormouse (*Eliomys melanurus*), obtained by him in Southern Palestine, where it is found in desert places.—Mr. P. L. Sclater, F.R.S., exhibited and called attention to a collection of mam-

mals, birds, reptiles, fishes, and insects, which had been made by the Rev. George Brown during his recent residence in Duke of York Island, and during excursions to the neighbouring islands of New Britain and New Ireland.—Prof. A. H. Garrod read a note on a variety of the domestic swine in the Society's collection, and pointed out that the presence of rudiments of a supplementary digit between the third and fourth digit might be the cause of the consolidation of the hoof, observable in this variety.—A communication was read from Mr. Henry Durnford containing notices of the habits of some small mammals obtained in the neighbourhood of Buenos Ayres.—A communication was read from Mr. Gerard Krefft, containing notes on a young living Cassowary (*Casuarius australis*), which had been obtained from North Australia, and was destined for the Society's collection.—A communication was read from Mr. G. French Angas, containing a description of a new species of *Helix*, from South Australia, which he proposed to call *Helix (Rhagada) koorin-gensis*.—A second paper by Mr. Angas contained the description of two genera and twenty species of marine shells, from different localities on the coast of New South Wales.

Geological Society, December 20.—Prof. P. Martin Duncan, F.R.S., president, in the chair.—Bartholomew Parker Bidder, Robert William Cheadle, David Grieve, Player Isaac, James Love, Kerry Nicholls, William Ridley, William Joseph Spratling, and George Blake Walker were elected Fellows of the Society.—The President announced that the late Dr. Barlow had left to the Society by will the sum of 500*l.*, to be invested and to constitute a fund under the title of the Jameson-Barlow Fund, the proceeds to be applied annually, or at intervals of two or more years, at the discretion of the Council, in such manner as shall seem to them best for the advancement of the study of geology. Dr. Barlow also left to the Society, under certain restrictions, his collections of geological specimens, and a selection of books from his library. The President further announced the donation to the Society, by the Earl of Enniskillen, of the drawings made by Mr. Dinkel, from Sir Philip de Malpas Grey-Egerton's collection, for the illustration of Prof. Agassiz's great work on Fossil Fishes, presented in accordance with the promise made by his Lordship at the meeting of May 24.—The following communications were read:—On *Pharetrasporgia strahani*, a fossil Holorhaphidote Sponge from the Cambridge Coprolite Bed, by W. J. Sollas, F.G.S.—On the remains of a large Crustacean, probably indicative of a new species of *Eurypterus*, or allied genus (*Eurypterus? stevensoni*) from the Lower Carboniferous series (Cement-stone group) of Berwickshire, by Robert Etheridge, jun., F.G.S., Palæontologist to the Geological Survey of Scotland. The fragmentary Crustacean remains described in this paper are referred by the author to a large species of *Eurypterus*. They are from a rather lower horizon in the Lower Carboniferous than that from which *Eurypterus scouleri*, Hibbert, was obtained. The animal was probably twice the size of *E. scouleri*. The remains consist of large scale-like markings and marginal spines which once covered the surface and bordered the head and the hinder edges of the body segments of a gigantic Crustacean, agreeing in general characters with the same parts in *E. scouleri*, but differing in points of detail. For the species, supposing it to be distinct, the author proposes the name of *E. stevensoni*.—On the Silurian Grits near Corwen, North Wales, by Prof. T. McKenny Hughes, F.G.S. The author commenced with a description of sections near Corwen, in North Wales, from which he made out that the grits close to Corwen were not the Denbigh grits, but a lower variable series, passing in places into conglomerate and sandstone with subordinate limestone and shale. The series, under the name of "*The Corwen Beds*," he described in detail, having traced them round the hills south of Corwen, also near Bryngorlan, south of the Vale of Clwyd, on Cymybrain, and south of Llangollen. He had noticed in places a kind of double cleavage affecting the lower series, but not the upper, and also fragments of cleaved mudstone included in the upper, from which he inferred a disturbance of the older rocks previous to the deposition of the newer. He exhibited a selection of fossils, and said that immediately below the Corwen beds there were none but Bala fossils. In the Corwen beds all the few fossils found were common to the Llandovery rocks, some of them, as *Meristella crassa* and *Petraia crenulata*, being peculiar to that formation. In the flaggy slates above the Pale Slates he had found Graptolites and Orthoceratites of the same species as those found in the Denbigh Flags. He considered that the Corwen Beds were on the horizon of the May Hill or Llandovery group, and should be taken as the base of the Si-

lurian, thus including in the Pale Slates or Tarannon Shale a thick series which intervened between the Corwen Beds and the flaggy slates of Penyglog.—On mineral veins, by W. Morgan, communicated by Warington W. Smyth, F.R.S.

Meteorological Society, January 17.—Annual General Meeting.—Mr. H. S. Eaton, president, in the chair.—The Council in their Report to the Fellows expressed their satisfaction at the progress that had been made by the Society during the year. The first point on which they thought there was reason for congratulation was the publication in their journal of the daily observations taken at Hawes and Strathfield Turgiss and of the monthly abstracts of the observations at thirteen other stations. The increase in the number of Fellows was considered worthy of special reference, as it is an indication not only of the vitality of the Society but also of the advance which meteorology is now making amongst the professional and general public. They also referred with much satisfaction to the enlargement of the Quarterly Journal as well as to the printing of the Catalogue of the Library and of the List of Fellows, which have both been issued during the year. They drew special attention to the report of Mr. Symons on the new stations which have been inspected and brought into relation with the Society. The financial position, notwithstanding the large outlays during the year, was very good. The report also contained the very interesting discussion by the Rev. T. A. Preston, of the observations on natural periodical phenomena.—The following gentlemen were elected Officers and Council for the ensuing year:—President, Henry Storks Eaton, M.A. Vice-Presidents: James Park Harrison, M.A., John Knox Laughton, F.R.A.S., Robert James Mann, F.R.A.S., Charles Vincent Walker, F.R.S. Treasurer, Henry Perigal, F.R.A.S. Trustees: Sir Antonio Brady, F.G.S., Stephen William Silver, F.R.G.S. Secretaries: George James Symons, John W. Tripe, M.D. Foreign Secretary, Robert H. Scott, F.R.S. Council: Percy Bicknell, Arthur Brewin, F.R.A.S., Charles Brooke, F.R.S., Edward Ernest Dymond, John Evans, F.R.S., Rogers Field, Assoc. Inst. C.E., Charles Greaves, M. Inst. C.E., William Carpenter Nash, Rev. Thomas Arthur Preston, M.A., William Sowerby, F.L.S., Capt. Henry Toynbee, F.R.A.S., George Mathews Whipple, F.R.A.S.

PARIS

Academy of Sciences, January 8.—M. Peligot in the chair.—The following papers were read:—Exploration of the Gulf of the two Syrtes, between Sfax and Benghazi, by M. Mouchez. This was in the early part of last year. The author sketches the character of the coast, and refers to difficulties he had with the natives, who are very hostile to Frenchmen, but receive Englishmen with ovation, for defending the Sultan. They had some curious very old arms. The great recent development of the Alfa trade on the Algerian coast is notable, and the fact that while 75 per cent. comes to England and 18 per cent. to Spain, only 4 per cent. comes to France. M. Mouchez regrets this small consumption by his country.—Theorems relating to series of triangles of the same perimeter satisfying four other conditions, by M. Chasles.—Does ozone combine with free nitrogen in presence of alkalis to form nitrous compounds and nitrates? by M. Berthelot. He verifies Schönbein's observations on the formation of nitrous compounds during slow oxidation of phosphorus in contact with air, but he had not observed oxidation of free nitrogen by ozone in presence of alkalis. He points out some sources of error in Schönbein's experiments.—Note on the alteration of urine, *à propos* of recent communications of Dr. Bastian, by MM. Pasteur and Joubert. Dr. Bastian had said that M. Pasteur in repeating his experiment had exceeded the point of saturation of the urine (with solid potash). MM. Pasteur and Joubert have re-examined the point, in careful experiment, and produced exact neutralisation; though they consider this not indispensable for fertilisation. Dr. Bastian would have got quite different results from what he described, had he used KO, HO, which alone can properly be called *potash*.—Observations on the interior structure of one of the masses of native iron of Ovifak, by M. Daubrée. In its section it presented the aspect of a loop of iron from a refining hearth, the scoræ of which had been very incompletely expelled by compression with the hammer or rolling mill.—Note on the fall of a meteorite which took place on August 16, 1875, at Feid Chair, in the circle of La Calle, province of Constantine, by M. Daubrée. It fell about midday; a noise was heard like a thunderpeal, and there was a train of blackish smoke with brilliant light in the middle of it. The mass, which weighed 380 grammes, rebounded

to about 30 metres further on, making a hole. It is of the most common type of sporadosiderites.—M. van Tieghem was elected member in the section of Botany, in place of the late M. Brongniart.—Report on a memoir of M. Haton de la Goupillière, entitled "Researches on the Brachistochrone of a Heavy Body with regard to Passive Resistances."—Determination of the polar distance in magnets, by M. Benoit.—Experiments on the coagulation of fibrine, by M. Schmidt. This is essentially a process of fermentation; soluble albuminoid substances are changed by the action of a specific ferment and in presence of a small quantity of neutral salts of alkaline metals, into insoluble bodies. The ferment does not pre-exist; it is formed when the liquids are brought into abnormal conditions. The places of its formation are the white corpuscles of the blood, the lymph, chyle, and pus, and the cells of certain tissues, which undergo decomposition, the liquid then receiving from them a new quantity of fibrinoplastic substance. Meanwhile all the fibrinogen substance disappears as such, while the fibrinoplastic substance in excess, with the ferment becomes a constituent part of the serum. A temperature of zero retards considerably the formation of the ferment; concentrated neutral salts of alkaline metals hinder it almost entirely. They also paralyse the action of the ferment in the liquids.—On the spontaneous disappearance of a disease which for seven years attacked the vines in the island of Cyprus, by M. Dubreuil. It seems to have been *oidium*; its disappearance is attributed to the growing of abundance of sumach among the vines.—On the construction of open manometers, for measuring high pressures, by M. Cailletet. In his apparatus a metallic tube (70m. long 2mm. inner diameter) is soldered into a reservoir of mercury at the foot of a hill side. At the free end above is adapted a wide glass tube. When the mercury is compressed in the reservoir it rises to the glass tube. This upper part is movable by reason of the flexibility of the metallic tube, and may be shifted between stakes fixed on the slope. The pressure developed is measured by the difference of levels of the mercury in the glass tube and the reservoir.—Effects of heat on voltaic circuits completed by an electrolyte, by M. Hellesen. In one arrangement two test tubes are connected by a tube near the top and fitted with saturated solution of sulphate of copper; a copper plate is inserted in the upper part in one, another in the lower part in the other; and the former is heated with a spirit lamp. A considerable current is had.—Action of sulphate of lime on alkaline sulphates, by M. Ditté.—On the camphor of patchouli, by M. de Montgolfier.—Note on the life and survival of spermatozooids within the mammalian egg, by M. Campana.

January 15.—M. Fizeau in the chair.—The following papers were read:—Exploration of the Great Syrtis, by M. Mouchez. He describes this coast as in great part an utter desert of sand, without tree or dwelling; and the beach strewed with wreck of vessels whose surviving crews were probably massacred. Careful survey was made of some 250 leagues of coast line, also observation of the tide (total amplitude at Syzygies about 1'5m.), the strange atmospheric refractions preceding and following the sirocco, the declination of the needle, and natural history.—Note on the question of the nature and the contagion of the disease called typhoid fever, by M. Bouillaud. M. Pasteur referred to his researches in which he had proved the disease of silkworms to be both contagious and infectious in the highest degree and not at all epidemic, in the ordinary sense. The same would probably hold good for typhoid fever. M. Chevreul also made some remarks.—Spectroscopic study of the new star observed by M. Schmidt, by P. Secchi. His observations chiefly confirm those by M. Cornu.—On the application of photography to observation of the transit of Venus, by M. Angot. This treats of the measurement of direct parallactic effect; which can be measured (1) by the angle of position; and (2) by the distance of the centres of the two stars. In the former it is difficult in practice to get with sufficient exactness a fixed direction as origin for the angles of position. The American expeditions have come nearest solving the problem, and their results will aid to a judgment on the method. In the second method, the determination of the angular value of the images is a difficulty; M. Angot shows how it may be met. A third method, based on the fact, that for objects uniformly illuminated, with straight borders and dimensions far above the zone of diffraction, the increase of the image of a luminous object is equal to the diminution of that of a dark object in like circumstances, seems at first irreproachable, but, in practice, leads to much error, because (1) the diameter of Venus is far from being large with reference to the extent of the diffracted zone; and (2) the luminous intensity of different parts of the sun is not uniform.—Experiments on the

coagulation of fibrine, by M. Schmidt. He distinguishes *proplastic* liquids, which do not contain ferments but contain substances generative of coagulation; *plastic* liquids, which coagulate spontaneously and contain ferment and which are generators of fibrine; and *fibrinogenous* liquids, serosities which contain the substance fibrinogen.—Second note relative to the effects produced by Phylloxera on the roots of various American and indigenous stocks, by M. Foey.—Effects of dilute sulphocarbonates on vines, by M. Maistre.—On the simultaneous determination of annual constants of aberration and of parallax, by M. Trepied. Observations of declination will give at once and with the same weight, the special constants of aberration and parallax for each of the stars, and these determinations, made at two stations suitably chosen will enable us to appreciate the influence of the absolute movement of translation of the solar system on the phenomenon of aberration.—On the relations which necessarily exist between the periods of the quadratrix of the most general algebraic curve of degree *m*, and, *à fortiori*, of a particular curve in its degree, by M. Marie.—The phenomena of the radiometer explained by means of pyro-electricity, by M. de Fonvielle. Pyro-electric phenomena occur not only at the surface of certain crystals when subjected to a variation of temperature, but any non-conducting body submitted to the action of luminous rays is heated, then electrified more or less according to its nature and the intensity of the action. M. Fonvielle thinks all the phenomena hitherto observed in the radiometer may be thus explained.—Note on a new derivative of albuminoid matter, by M. Schützenberger.—On the optical properties of Mannite, by MM. Müntz and Aubin.—Action of chlorochromic acid on organic matters, by M. Etard.—Chemical studies on mistletoe (*Viscum album*, Linn.), by MM. Grandeaun and Bouton: 1. The composition of the stem differs essentially from that of the species of trees on which it grows. 2. The composition varies with the species. 3. Mistletoe contains much more potash and phosphoric acid than its supporting trees, and much less lime. 4. It seems to live on the tree like a plant on the soil; it takes from the yellow parts gorged with nutritive juices, the incombustible matters necessary for its organisation.—On testing of wines for fuchsine and other similar colouring matters, by M. Béchamp.—On the passage of plasma through living unperforated membranes, by M. Cornu. It passes in a manner contrary apparently to the laws of endosmosis.—On the winter of 1877, by M. Renou.—M. Archereau presented prepared carbons for the electric light, said to increase the stability and illuminating power. They consist of carbon agglomerated and compressed, mixed with magnesia.

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